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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/676,656	10/01/2003	Ronald S. Cok	87021THC	8977

7590 07/19/2005

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EXAMINER	
HON, SOW FUN	

ART UNIT	PAPER NUMBER
1772	

DATE MAILED: 07/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/676,656	COK, RONALD S.	
	Examiner	Art Unit	
	Sow-Fun Hon	1772	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 April 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-31* is/are pending in the application.

4a) Of the above claim(s) *25-31* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *03 October 2004* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *4/1/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

Election/Restrictions

1. Claims 25-31 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected process, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 04/01/05.

Rejections Withdrawn

2. The claim objections in the Office action dated 12/30/04 have been withdrawn due to applicant's amendment dated 04/01/05.

3. The prior art rejections in the Office action dated 12/30/04 have been withdrawn due to applicant's amendment dated 04/01/05.

New Rejections

Claim Rejections - 35 USC § 103

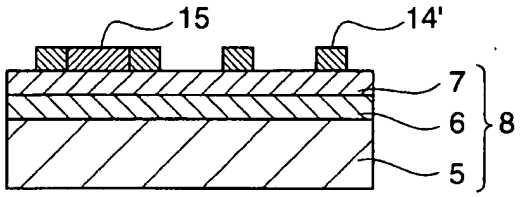
4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claims 1-10, 20, 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohtsu et al. (US 6,436,591) in view of Wolk et al. (US 6,291,126).

Regarding claim 1, Ohtsu teaches a conductive color filter (column 7, lines 20-30), comprising a light-transmitting conductive layer 7 (film) (column 16, lines 55-60) in Fig. 4B of Ohtsu on the next page, which can be a conductive carbon material (column

16, lines 65-68), covered by a layer 15(B, G, R) of colored polymeric resin binder (acrylate resin with a colorant) (column 9, lines 45-50).

FIG.4B



Ohtsu teaches that the light-transmitting conductive layer 7 is a conductive carbon material (column 16, lines 63-68), but fails to disclose that the light-transmitting conductive carbon material is composed of carbon nanotubules.

Wolk teaches that carbon nanotubules are used as a conductive layer (column 14, lines 15-20) in display devices (column 1, lines 60-68). Carbon nanotubules are light-transmitting (transparent), as defined by Applicant's specification (page 2, lines 5-10).

Therefore, because Wolk teaches that carbon nanotubules is used as a conductive layer in display devices, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have used carbon nanotubules as the light-transmitting conductive carbon material of Ohtsu, in order to obtain the desired conductivity.

Regarding claim 2, Ohtsu teaches that the color filter can be black (column 8, lines 1-5), red, green and blue (column 6, lines 60-65).

Regarding claims 5-6, Ohtsu teaches that in the color filter, the conductive color filter layer is stacked on a light-transmitting base substrate (column 18, lines 15-25).

The light-transmitting substrate is preferably made of plastic (column 16, lines 60-65) which is electrically insulating. Therefore the conductive color filter can be a layer (multilayer) having an electrically conductive side (layer) and an electrically insulating side (layer). The substrate functions as a support to maintain the structural integrity of the display device. The thickness of the light-transmitting substrate is therefore expected to be sufficient to maintain structural integrity during the deposition process of the conductive color filter layer.

Regarding claims 3-4, 7, Ohtsu teaches a transparent conductive electrode (ITO thin film 6) (column 27, lines 50-55) which is in contact with light-transmitting conductive layer 7 (Fig. 4B of Ohtsu on previous page), and therefore in electrical contact with the conductive color filter. Ohtsu teaches that a metal layer in place of the ITO layer, can be used as a transparent conductive electrode (column 16, lines 63-68). Although Ohtsu fails to teach metal alloys, the metals listed by Ohtsu (column 16, lines 64-66) have different physical properties, including conductivity and light-transmittance. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have used an alloy of some of the metals listed by Ohtsu, in order to obtain the desired balance of conductivity and light-transmittance for the transparent conductive electrode.

Regarding claim 8, Ohtsu teaches that the transparent conductive electrode (metal plating thin film) can be deposited upon (formed after) the conductive color filter (colored electrodeposition film) (column 15, lines 34-40).

Regarding claim 9, Ohtsu teaches that the conductive color filter can be deposited upon the transparent conductive electrode (forming the metal-plating thin film before the colored electrodeposition film) (column 15, lines 40-50).

Regarding claim 10, Ohtsu teaches that the counter electrode 11 is a platinum electrode (column 27, lines 64-66) in electrical contact with the ITO thin film 6 (column 27, lines 50-55) contacting light-transmitting conductive layer 7 (Fig. 4B of Ohtsu on previous page), and is therefore in electrical contact with the conductive color filter.

Regarding claim 20, Ohtsu teaches that the polymer resin binder contains carbon black for the black matrix (column 8, lines 1-5).

Regarding claim 22, Ohtsu teaches that the conductive color filter is a layer wherein the electrolyte is uniformly dispersed, and the conductivity is extremely uniform (column 8, lines 20-30). Therefore the conductive color filter is a layer which has a tangible thickness and is conductive through the thickness of the layer.

6. Claims 11-13, 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohtsu in view of Wolk, as applied to claims 1-10, 20, 22 above, and further in view of Chung (US 6,426,590).

Regarding claims 11, 19, Ohtsu in view of Wolk, teaches a conductive color filter, comprising a layer of carbon nanotubes covered by a layer of colored polymeric resin binder. In addition, Ohtsu teaches that the conductive color filter is employed in a color display such as a liquid crystal display (column 1, lines 7-12), but fails to disclose a flat-panel color display.

Chung teaches that flat panel color display devices are widely used (column 2, lines 49-55) and provides improved resolution over traditional liquid crystal displays (column 2, lines 49-59).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have used the conductive color filter of Ohtsu in view of Wolk, in a flat-panel color display, and hence a flat-panel LCD color display instead of a traditional liquid crystal display, in order to improved resolution, as taught by Chung.

Regarding claims 12-13, Ohtsu teaches that the conductive color filter is formed on a light-emitting substrate (column 5, lines 1-5). Therefore the red, green or blue color filter (column 6, lines 60-65) is located over a light-emitting element of the display (claim 13). When the color is black to form a black matrix (column 8, lines 1-5), the color black inherently absorbs light, and is therefore located in a non-emissive area of the display (claim 12).

7. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ohtsu in view of Wolk and Chung, as applied to claims 11-13, 19 above, and further in view of Jones (US 5,672,938).

Ohtsu in view of Wolk and Chung, teaches a flat-panel OLED display comprising a conductive color filter, comprising a layer of carbon nanotubes covered by a layer of colored polymeric resin binder, as described above. In addition, Ohtsu teaches that the conductive color filter is formed over a substrate (column 16, lines 1-5), and employed in a color display such as a liquid crystal display (column 1, lines 7-12). Chung teaches that flat panel color display devices are widely used (column 2, lines 49-55), providing

improved resolution over traditional liquid crystal displays (column 2, lines 49-59), and that emission displays have higher contrast ratio, larger viewing angle, higher maximum brightness, lower power consumption and a wider operating temperature range when compared to a conventional liquid crystal display (column 3, lines 1-10).

Ohtsu in view of Wolk and Chung, fails to disclose an organic light emission display device (OLED).

Jones teaches the use of electron injection into light emissive/organic materials to enhance the concentration of charge carriers in the organic material, and thereby enhance the brightness and hence illumination efficiency of the organic material (column 1, lines 50-60), and that this can be used in organic light emission devices (electroluminescent lamps), field emission (emitter) devices and liquid crystal displays (technologies) (abstract), especially OLEDs (organic light emissive material-based devices) (column 1, lines 40-50).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have used an OLED (organic light emission device) taught by Jones, in place of the liquid crystal display device of Ohtsu in view of Wolk, in order to obtain a display with enhanced illumination efficiency, as taught by Jones.

8. Claims 16, 18, 21, 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohtsu in view of Wolk, Chung and Jones, as applied to claim 14 above, and further in view of Boroson et al. (US 6,226,890).

Ohtsu in view of Wolk, Chung and Jones, teaches a an OLED flat-panel display comprising a conductive color filter, comprising a layer of carbon nanotubes covered by a layer of colored polymeric resin binder, as described above.

Regarding claims 16, 18, Ohtsu in view of Wolk, Chung and Jones, fails to teach that the OLED flat-panel color display is bottom emitting or top emitting.

Boroson teaches two embodiments of an OLED display, a bottom-emitting one 9 in Fig. 2 (described in column 5, lines 60-65) (claim 16) and a top-emitting one in Fig. 3A (inverted position described in column 5, lines 65-67) (claim 18), demonstrating that it is a matter of design choice for the desired end-use.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have provided the OLED flat-panel color display of Ohtsu in view of Wolk, Chung and Jones, as either a bottom-emitting or top-emitting OLED, as taught by Boroson, for the desired end-use.

Regarding claims 21, 23, Ohtsu in view of Wolk, Chung and Jones, fails to teach that the OLED flat-panel color display further comprises a dessicant dispersed in the polymeric resin binder, which would effectively provide a protective layer for the OLED.

Boroson teaches that a dessicant is required to prevent premature degradation of device performance (column 1, lines 13-23) in organic light-emitting devices (OLED) (column 1, lines 23-33). Boroson teaches that a device with an organic color filter overlay is subject to restrictions (column 2, lines 15-20) regarding the use of certain solvents to apply the dessicant to the organic-based devices (column 2, lines 1-10). Thus Boroson teaches that the dessicant is applied to an organic color filter overlay.

Therefore it would have been obvious to one ordinary skill in the art at the time the invention was made, to have dispersed a dessicant in the organic polymeric resin binder of the conductive color filter in the OLED of Ohtsu in view of Wolk, Chung and Jones, in order to prevent premature degradation of conductive filter and overall device performance, as taught by Boroson.

9. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ohtsu in view of Wolk, Chung and Jones, as applied to claim 14 above, and further in view of Yamada et al. (US 5,583,675).

Ohtsu in view of Wolk, Chung and Jones, teaches a an OLED flat-panel display comprising a conductive color filter, comprising a layer of carbon nanotubes covered by a layer of colored polymeric resin binder, as described above. Ohtsu in view of Wolk, Chung and Jones, fails to teach an ultraviolet filter material dispersed in the polymeric resin binder.

Yamada teaches that color filters are directly exposed to ultraviolet rays, and that the color may be undesirably changed by the ultraviolet rays. Yamada teaches that this is avoided by adding an ultraviolet absorber, which functions as an ultraviolet filter material, to the color filter (column 14, lines 40-50).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have dispersed the ultraviolet filter material in the polymeric resin binder of the conductive filter of Wolk, Chung and Jones, in order to obtain a conductive color filter with the desired ultraviolet protection, as taught by Yamada.

Response to Arguments

10. Applicant's arguments with respect to claims 1-24 have been considered but are moot in view of the new ground(s) of rejection.

Allowable Subject Matter

11. Claims 15, 17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The closest cited prior art of record, US 6,436,591, fails to teach or suggest, even in combination with US 6,291,126, US 6,426,590, US 5,672,938 and US 6,226,890, the combination of a flat panel organic light emitting device color display comprising a conductive color filter comprising a layer of carbon nanotubes covered by a layer of colored polymeric resin binder, wherein the conductive color filter is an anode or a cathode.

Conclusion

12. The prior art made of record and not relied upon, US 6,777,869, is cited as a reference of interest to show that carbon nanotubules are light-transmitting (transparent to visible light, column 2, lines 25-35).

Any inquiry concerning this communication should be directed to Sow-Fun Hon whose telephone number is (571)272-1492. The examiner can normally be reached Monday to Friday from 10:00 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harold Pyon, can be reached at (571)272-1498. The fax phone number for the organization where this application or proceeding is assigned is (703)872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

S. Hon.
Sow-Fun Hon
07/11/05

HAROLD PYON
SUPERVISORY PATENT EXAMINER
1772
7/11/05